at our barracks one evening in the last week of April, 1919, furnished thrice as much disease as 2000 in two years and four months."

In chap. x., "Quick Disinfection," the author attacks the policy of the National Council of preaching and treating, and the Army authorities for not adopting the one thing necessary for success—to insist on, and enforce, the careful instruction of the men in the use of the disinfectant.

In chap. xi. the author gives "Comparative Statistics," and he quotes some remarkably satisfactory results of Surgeon-Commander P. H. Boyden: "Amongst 496 men employing this method, one case of syphilis is recorded, but in this case the treatment was used six hours after exposure."

Civilian early-treatment centres were advocated by the National Council, but, as might have been expected, both borough and county councils rejected them as impracticable and costly, and Manchester alone has made a trial of this means of preventing venereal disease. There are 183 treatment centres, and where these are necessary prophylactic measures are more necessary, and it is to be hoped that the Ministry of Health will now see that the simple and inexpensive measure of self-disinfection is the only practical method of dealing with this problem—a procedure which, in the hands of Sir Archdall Reid, has proved so eminently successful, and which the Society for the Prevention of Venereal Disease has consistently advocated.

In chaps. xv. and xvi. Sir Archdall Reid gives an adequate explanation of a misapprehension that might have arisen from the evidence he gave before the Inter-Departmental Committee regarding the trustworthiness of his figures and the value of his work, and it is not surprising that he should make and prove charges of misrepresentation of facts by officials through the mouth of Lord Sandhurst when the latter took part in a debate upon a motion by Lord Willoughby de Broke in the House of Lords. The author in chap. xvii., "Lord Sandhurst's Apologetics," vindicates his position regarding his statistics of venereal disease in Portsmouth Town, which is not the Portsmouth area that was quoted.

The report of a Committee appointed by the Birth Rate Commission to take evidence upon the prevention of venereal disease found in favour of immediate self-disinfection; but the only *sure* method they advised is to avoid promiscuous sexual intercourse. Having regard to the composition of this Committee, Sir Archdall Reid has therefore the satisfaction of knowing that he is a pioneer who has convinced those whom he thought were irreconcilable to his views.

We can cordially recommend this work to all readers of NATURE, on account of its philosophic and scientific character and the fearless courage with which the author has successfully resisted and attacked the authorities who stood in the way of the adoption of scientific methods for the prevention of disease at a critical period of the nation's history.

Plant Evolution.

Studies in Fossil Botany. By Dr. Dukinfield H. Scott. Third edition. Vol. i. *Pteridophyta.* Pp. xxiii + 434. (London: A. and C. Black, Ltd., 1920.) 25*s.* net.

IN the preface to the first edition of his "Studies," Dr. Scott stated that his object was not to write a manual of fossil botany, but to present to the reader "those results of palæobotanical inquiry which appear to be of fundamental importance from the botanist's point of view." The fact that the third edition of vol. i., which deals with the Pteridophyta, needed as thorough a revision as the second edition shows that recent palæobotanical research has not been barren of results. "The only direct evidence which is possible in questions of descent among plants is from the ancient plants themselves." The interpretation of the evidence is the difficulty; not only did many of the types preserved in the rich plant-bearing beds of the Carboniferous period greatly exceed in size their modern representatives, but they were also more complex in structure. Generalised or synthetic types are common enough, and the inference is usually drawn that these extinct genera indicate the common origin of groups or families now comparatively remote; ancestral stocks are imagined, not discovered. Even the oldest known land plants, though in some respects simpler than those which followed them, appear to be far advanced in their anatomical differentiation, and the mechanism of the plant machine is essentially similar to that of existing plants.

We have, it must be admitted, not progressed very far towards "the completion of the natural system." The farther we penetrate into the past, the more fascinating becomes the search for origins. Lines seem to converge; but it may be that, with our imperfect vision, we see parallel lines of evolution as though they converged. The author, in speaking of Asteroxylon, one of the most ancient of terrestrial plants, with his usual caution suggests that the characters of the genus are indicative of a union of the fern and lycopod

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groups, but he adds that these characters "may, after all, admit of a different explanation." It may be that he has less faith in common ancestors than he once had, and if this surmise be true he is not alone in this sceptical attitude. Dr. A. H. Church believes that ferns and lycopods represent separate lines of evolution from unicellular flagellates, and, as Dr. Scott remarks, it would be rash to reject Dr. Church's hypothesis of transmigration simply on the ground of the synthetic nature of such a plant as Asteroxylon.

Few additions have been made to the earlier chapters of the volume. To that on Sigillaria and allied genera an account has been added of a remarkable heterosporous lycopodiaceous cone from the Coal Measures, the genus Mazocarpon, described by Dr. Margaret Benson. The section devoted to the ferns, which has been in part rewritten, is a particularly welcome contribution to a puzzling subject. It is now recognised that the ferns did not hold the dominant position in the Palæozoic period formerly assigned to them; there were tree ferns and simpler herbaceous genera exhibiting a wide range in their morphological characters, in some features strikingly similar to modern forms, in others very different. Their origin is an unsolved problem. The admirable work of Dr. Kidston and the late Prof. Gwynne-Vaughan on the fossil Osmundaceæ is briefly summarised, and the recent researches of Dr. Gordon, M. Paul Bertrand, and others on the Botryopteridaceæ are described and correlated with conspicuous success.

In the last chapter Dr. Scott gives a very good account of the already famous genera Rhynia, Hornea, and Asteroxylon, founded on exceptionally well preserved material from a bed of Middle, or possibly Lower, Devonian chert discovered in 1913 by Dr. Mackie, and thoroughly investigated by Dr. Kidston and Prof. Lang. These plants, admirably described and illustrated in Prof. Bower's lectures, published in Nature for July 29 and August 5, 1920, afford us glimpses of what, so far as we know at present, is the oldest land vegetation; though separated by an interval of several hundred millions of years from existing plants, they exhibit anatomical characters wonderfully similar to those of certain recent types. In some respects these Devonian genera are more primitive than any living Pteridophytes, and, like so many extinct plants, they appear to have attributes of phyla that are now widely separated. What was their history? Do they bring us within sight of the transition from algæ to vascular plants suggested by Dr. Arber (in a posthumous book,[1] to which Dr. Scott refers), and advocated with much ability and ingenuity by Dr. Church in a recent memoir? Whatever the significance of the older Devonian plants may be, botanists have now an opportunity of reading an excellent account of the facts.

It is superfluous to commend Dr. Scott's book to botanists familiar with the earlier editions, but one may express the hope that this up-to-date survey of the field selected for treatment, presented in a form which reflects the greatest credit upon author and publisher, may lead many botanical students to appreciate at their true value the older records of the rocks, and to endeavour to form an unbiassed opinion on the bearing of palæobotanical evidence on the general question of the method by which the plant world has been evolved. As Prof. Bateson says, "we have got to recognise that there has been an evolution." Is it true, as we are often assured, that the study of fossil plants confirms the orthodox views on progressive development, or do the results of modern research into the floras of the past compel us to admit greater ignorance of the course of plant evolution than is generally allowed? The great value of the volume under consideration is that it gives us a well-proportioned statement of the more trustworthy results of palæobotanical inquiry, and provides the student with the means of forming his own conclusions.

A. C. Seward.

A Modern Inorganic Chemistry.

A Text-book of Inorganic Chemistry for University Students. By Prof. J. R. Partington. Pp. xii + 1062. (London: Macmillan and Co., Ltd., 1921.) 25*s*.

THE general arrangement of this book is logically worked out on a well-ordered plan, and the author has a straightforward and easy style. The result is a very readable volume, which is, in our opinion, the best of its kind in the language.

The introductory chapters are excellent, as also are those sections dealing with the development of fundamental chemical theories during the nineteenth century. In fact, the historical aspects of the subject are well emphasised throughout. (We must, however, dissent from the desirability of referring atomic weights to the standard $H = 1$. The difficulties from the point of view of the student caused by the use of the oxygen standard

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[1] This volume, entitled "Devonian Floras," was published in January last.

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